



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SCIENCE:

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

PUBLISHED BY

N. D. C. HODGES,

47 LAFAYETTE PLACE, NEW YORK.

SUBSCRIPTIONS.—United States and Canada.....\$3.50 a year.
Great Britain and Europe..... 4.50 a year.

Communications will be welcomed from any quarter. Abstracts of scientific papers are solicited, and twenty copies of the issue containing such will be mailed the author on request in advance. Rejected manuscripts will be returned to the authors only when the requisite amount of postage accompanies the manuscript. Whatever is intended for insertion must be authenticated by the name and address of the writer; not necessarily for publication, but as a guaranty of good faith. We do not hold ourselves responsible for any view or opinions expressed in the communications of our correspondents.

Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

VOL. XVI. NEW YORK, OCTOBER 10, 1890. No. 401.

CONTENTS:

THE ELECTRO-MAGNET.....	197	LETTERS TO THE EDITOR.	
NOTES AND NEWS.....	202	On the Minerals contained in a	
AN IMPORTANT MEETING OF MIN-		Kiowa County (Kansas) Mete-	
ING AND METALLURGICAL ENGI-		orite. <i>E. H. S. Bailey</i>	206
NEERS.....	204	The Unit Measure of Time	
WHEAT SMUT.....	204	<i>C. Macdonald</i>	206
HEALTH MATTERS.		BOOK-REVIEWS.	
The Diaphanous Test of Death..	205	Elliptic Functions.....	207
Impurities under Finger-Nails..	205	The Principles of Psychology....	207
Some Cases of Prolonged Want		The Theory of Determinants....	208
of Food.....	205	An Introduction to the Logie of	
Long-Immersed Human Sub-		Algebra.....	209
jects.....	205	AMONG THE PUBLISHERS.....	209
Medical Students Abroad.....	206		

AN IMPORTANT MEETING OF MINING AND METALLURGICAL ENGINEERS.

A JOINT meeting of the American Institute of Mining Engineers, the Iron and Steel Institute of Great Britain, and the Verein Deutscher Eisenhuettenleute of Germany, was held in this city last week. The meeting of the American Institute of Mining Engineers occupied the first two days, the sessions being held in Chickering Hall. At the first session, on Monday afternoon, addresses of welcome were delivered by J. F. Lewis and Hon. Abram S. Hewitt. Then, after some routine business, the reading of papers began, the first being on "Explosions from Unknown Causes," by J. C. Bayles. Five other papers, by John C. Fowler, F. H. McDowell, Clemens Jones, C. M. Ball, and Oberlin Smith, were read by title.

At the Monday evening session papers were read by W. B. Potter and W. E. Durfee.

The first paper of the Tuesday morning session, by H. H. Campbell, was read by title and not discussed. In the next paper, by H. C. Spaulding, which treated of electric power-transmission in mining operations, and in the discussion of it, the advantages of the alternating current for the distribution of power over long distances were clearly set forth. The other papers at this session were read only by title.

On Tuesday afternoon only two papers were read and discussed; namely, "Recent Improvements in German Steel-Works and Rolling-Mills," by R. M. Daelen, and "Machinery for Charging

and Heating Melting-Furnaces," by S. T. Wellman. Several other papers were read by title.

At the Tuesday evening session Alphonse Fteley read a paper on "The Water-Supply of New York City." The concluding papers of the session were by James Douglas, jun., and Eckley B. Coxe.

On Wednesday morning the Iron and Steel Institute began its meeting, President Sir James Kitson in the chair. Andrew Carnegie, chairman of the reception committee, delivered the address of welcome, which was responded to by the president, who then read his formal presidential address. The usual routine business of the institute was then disposed of. Technical papers were read by James Gayley and E. S. Cook. In the afternoon all who desired went on an excursion up the Hudson.

On Thursday the Bessemer gold medal and diploma were formally presented to Hon. Abram S. Hewitt. In the afternoon James Dredge, editor of *Engineering*, delivered an address on the late Alexander Lyman Holley, after which the audience went in a body to Washington Square, where a statue of Holley was unveiled. The evening was devoted to banquets and receptions.

On Friday visits were made to points of interest in and about the city, and on Saturday the visitors departed for Philadelphia.

WHEAT SMUT.

BULLETIN No. 12 of the Experiment Station of the Kansas State Agricultural College, Manhattan, Kan., is on some "Preliminary Experiments with Fungicides for Stinking-Smut of Wheat." In very many localities, in nearly every wheat-growing country, the crop is more or less injured, and sometimes seriously damaged, by a disease called "stinking-smut," "bunt," or simply "smut." This disease is not detected until the plants have headed out, and even then it is often overlooked. Before the grain ripens, a careful examination reveals the fact that certain heads have a dark, bluish-green color, while healthy plants present a lighter, yellowish-green color. During and after ripening of the grain, the smutted heads have a paler appearance than healthy ones. At no time do the smutted heads present the yellowish shade so characteristic of ripening wheat. When the smutted heads are examined, it is found that the grains have become dark and more or less swollen. They are at first of a greenish color, but become brownish or grayish when fully ripened. Because of their being usually swollen, the smutted grains push the chaff apart more than the sound kernels do, giving the head a slightly inflated and somewhat abnormal appearance. If one of the swollen smutted grains be crushed, it is found to be filled with a rather dull-brownish powder, which has a very disagreeable and penetrating odor. Often the disease is not discovered till the grain is threshed, when it is recognized by the odor arising from the smutted grains crushed by the machine. The smut may also be recognized during the milling, both from the odor arising during the grinding and by the dark streaks found in the flour. The dissemination of the disease is brought about by the use of smutted seed. The brown powder (smut) lodged in the threshing-machine may infect the seed, or the smut remaining in the field may, perhaps, through the soil, infect the succeeding crop. A summary of the results of the experiments at the Kansas Station, which were carried out by the botanists W. A. Kellerman and W. T. Swingle, shows that the stinking-smut of wheat is a destructive disease, caused by two closely allied, parasitic fungi called *Tilletia foetens* and *Tilletia Tritici*; that these two species of smut differ only in a few microscopic characters, and both produce the same disease; that the disease is spread by spores of these fungi adhering to the sound grains before they are planted, or perhaps rarely by spores present in the soil; that the damage from this disease is often very considerable, sometimes amounting to from one-half to three-quarters of the whole crop; that in ordinary cases the disease can be entirely prevented by soaking the seed fifteen minutes in water heated to 132° F.; that the other fungicides used, when decreasing the amount of smut, at the same time also interfered with the germination, and reduced the vigor of the plants; and that seed from clean fields (if the adjoining fields were not smutty) will produce a crop of wheat free from smut.